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Serial No. : 10/028,003
Filed   : Dec. 20, 2001
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AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1.   (Original) A method for estimating bit error rate for disc media in a disc drive at a predetermined time occurring within a predetermined time period divided into a plurality of time intervals, the method comprising:

writing data to the disc media beginning at an initial time interval;

reading the data recorded on the disc media at specified interval points during the predetermined time period;

computing a bit error rate value for the disc media at each specified interval point;

extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over the predetermined time period, wherein the decay graph links the predetermined time to an estimated bit error rate for the disc media.

2.   (Original) The method of claim 1 wherein the writing step writes data to a test track on the disc media and the reading step reads the data recorded on the test track, the computing step comprising:

computing a raw error value for the test track equal to a quantity of errors encountered while reading the test track at each specified interval point; and

determining the bit error rate value for the disc media at each specified interval point by dividing the computed raw error value of the test track at each specified interval point with a total number of data bits read at each specified interval point.

3.   (Original) The method of claim 1 wherein the writing step writes data to a plurality of test tracks on the disc media and the reading step reads the data recorded on the test tracks, the computing step comprising:

computing a raw error value for each test track at each specified interval point equal to a quantity of errors encountered while reading the test tracks at the specified interval points; and

determining a bit error rate value for the disc media at each specified interval point by dividing the computed raw error values of the test tracks on each specified interval point with a total number of data bits read on the test tracks at each specified interval point.

4.   (Original) The method of claim 1 further comprising:

comparing the estimated bit error rate at the predetermined time to a threshold bit error rate value for the disc media at the predetermined time; and

if the estimated bit error rate is greater than or equal to the threshold bit error rate, marking the disc drive as a failure.

5.   (Original) The method of claim 4, wherein the predetermined time period is equal to an expected lifetime of the disc drive beginning at a certification test and ending at the predetermined time.

6.   (Original) The method of claim 5, wherein the writing step, the reading step, the computing step and the extrapolating step are performed during the certification test.

7.   (Original) The method of claim 6, wherein the marking step further comprises:

removing the disc drive from the certification test such that the disc drive is thereafter refused shipment to a customer.

8.   (Original) The method of claim 1, wherein the predetermined time period represents an expected lifetime of the disc drive beginning at a certification test and ending at the predetermined time.

9.   (Original) The method of claim 8, wherein the writing step, the reading step, the computing step and the extrapolating step are performed during the certification test.

10.   (Original) The method of claim 1 further comprising:

determining non-decay based bit error rate values for the disc media at each specified interval point, the non-decay based bit error rate values being representative of bit error rate change affected by non-decay phenomena; and

normalizing the bit error rate values for the disc media at each specified interval point by non-decay based bit error rate values for the disc media at corresponding specified interval points such that the extrapolating step creates a normalized decay graph representing bit error rate change for the disc media affected by decay phenomena, wherein the estimated bit error rate linked to the predetermined time by the normalized decay graph is an estimated decay-based bit error rate for the disc media at the predetermined time.

11.   (Original) The method of claim 10, wherein the determining step comprises:

writing data to a reference track on the disc media at an initial interval point corresponding to the beginning of the initial time interval;

reading the data recorded on the reference track during the initial time interval;

re-writing the reference track with replacement data at each specified interval point throughout the predetermined time period and thereafter reading the replacement data recorded

on the reference track beginning at each specified interval point immediately after the data is committed to the disc media; and

computing a raw error value equal to a quantity of errors encountered while reading the reference track beginning at each specified interval point; and

determining the non-decay based bit error rate value for the disc media at each specified interval point by dividing the computed raw error value of the reference track at each specified interval point with a total number of data bits read.

12.   (Original) The method of claim 11 further comprising:

comparing the estimated decay-based bit error rate at the predetermined time to a threshold bit error rate value for the disc media at the predetermined time; and

if the estimated decay-based bit error rate is greater than or equal to the threshold bit error rate, marking the disc drive as a failure.

13.   (Original) The method of claim 12, wherein the predetermined time period represents an expected lifetime of the disc drive beginning at a certification test and ending at the predetermined time.

14.   (Original) The method of claim 13, wherein the writing step, the reading step, the computing step and the extrapolating step are performed during the certification test.

15.   (Original) A program storage device readable by a computer system tangibly embodying a program of instructions executable by the computer system to perform a method for estimating bit error rate for disc media in a disc drive at a predetermined time occurring within a predetermined time period divided into a plurality of time intervals, the method comprising:

writing data to the disc media beginning at an initial time interval;

reading the data recorded on the disc media at specified interval points during the predetermined time period;

computing a bit error rate value for the disc media at each specified interval point; and

extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over the predetermined time period, wherein the decay graph links the predetermined time to an estimated bit error rate for the disc media.

16.   (Original) A program storage device as defined in claim 15, wherein the writing step writes data to a test track on the disc media and the reading step reads the data recorded on the test track, the computing step comprises:

computing a raw error value for the test track equal to a quantity of errors encountered while reading the test track at each specified interval point; and

determining a bit error rate value for the disc media at each specified interval point by dividing the computed raw error value of the test track at each specified interval point with a total number of data bits read at each specified interval point.

17.   (Original) A program storage device as defined in claim 15 wherein the writing step writes data to a plurality of test tracks on the disc media and the reading step reads the data recorded on the test tracks, the computing step comprising:

computing a raw error value for each test track at each specified interval point equal to a quantity of errors encountered while reading the test tracks at the specified interval points; and

determining a bit error rate value for the disc media at each specified interval point by dividing the computed raw error values of the test tracks at each specified interval point with a total number of data bits read on the test tracks at each specified interval point.

18.   (Original) A program storage device as defined in claim 15, wherein the method further comprises:

comparing the estimated bit error rate at the predetermined time to a threshold bit error rate value for the disc media at the predetermined time; and

if the estimated bit error rate is greater than or equal to the threshold bit error rate, marking the disc drive as a failure.

19.   (Original) A program storage device as defined in claim 18, wherein the predetermined time period is equal to an expected lifetime of the disc derive beginning at a certification test and ending at the predetermined time.

20.   (Original) A program storage device as defined in claim 19, wherein the writing step, the reading step, the computing step and the extrapolating step are performed during the certification test.

21.   (Original) The program storage device as defined in claim 15, wherein the predetermined time period represents an expected lifetime of the disc drive beginning at a certification test and ending at the predetermined time.

22.   (Original) A program storage device as defined in claim 21, wherein the writing step, the reading step, the computing step and the extrapolating step are performed during the certification test.

23.   (Original) A program storage device as defined in claim 15, wherein the method further comprises:

determining non-decay based bit error rate values for the disc media at each specified interval point, the non-decay based bit error rate values being representative of bit error rate change affected by non-decay phenomena; and

normalizing the bit error rate values for the disc media at each specified interval point by non-decay based bit error rate values for the disc media at corresponding specified interval points such that the extrapolating step creates a normalized decay graph representing bit error rate change for the disc media affected by decay phenomena, wherein the estimated bit error rate linked to the predetermined time by the normalized decay graph is an estimated decay-based bit error rate for the disc media at the predetermined time.

24.   (Original) A program storage device as defined in claim 23, wherein the determining step comprises:

writing data to a reference track on the disc media at an initial interval point corresponding to the beginning of the initial time interval;

reading the data recorded on the reference track beginning at the initial interval point immediately after the data is committed to the disc media;

re-writing the reference track with replacement data at each specified interval point throughout the predetermined time period and thereafter reading the replacement data recorded on the reference track beginning at each specified interval point after the data is committed to the disc media; and

computing a raw error rate representing a quantity of errors encountered while reading the reference track beginning at each specified interval point; and

determining the non-decay based bit error rate value for the disc media at each specified interval point by dividing the computed raw error value of the reference track at each specified interval point with a total number of data bits read.

25.   (Original) A program storage device as defined in claim 24, wherein the method further comprises:

comparing the estimated decay-based bit error rate to a threshold bit error rate value for the disc media at the predetermined time; and

if the estimated decay-based bit error rate is greater than or equal to the threshold bit error rate, marking the disc drive as a failure.

26.   (Original) A disc drive having a data storage disc rotatably mounted to a base plate and an actuator arm mounted on the base plate adjacent the disc, the disc drive comprising:

a transducer attached to the actuator arm operable to write data to and thereafter read data stored on a recordable media of the disc over a predetermined time period divided into a plurality of time intervals; and

means for determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time.

27.   (Original) A disc drive as defined in claim 26, wherein the predetermined time period represents an expected lifetime of the disc drive beginning at a certification test and ending at the predetermined time.

28.   (Original) A disc drive as defined in claim 26, wherein the transducer writes data to a test track on the recordable media at an initial interval point and thereafter reads the data recorded on the test track at the specified interval points, the determining means comprising:

means for computing a bit error rate value for the recordable media at each specified interval point by dividing a quantity of errors encountered while reading the test rack at each specified interval point by a total number of data bits read on the test track at each specified interval point.

29.   (Original) A disc drive as defined in claim 28, wherein the determining means further comprises:

means for extrapolating the bit error rate values to create a decay graph representative of bit error rate change for the recordable media over the predetermined time period, wherein the decay graph links the predetermined time to an estimated bit error rate for recordable media.

30.   (Original) A disc drive as defined in claim 29, wherein the determining means further comprises:

means for computing non-decay based bit error rate values for the recordable media at each specified interval point, the non-decay based bit error rate values being representative of bit error rate affected by non-decay phenomena, wherein the non-decay based bit error rate values normalize the bit error rate values for the recordable media at each specified interval point such that the decay graph represents bit error rate change for the disc media affected by decay phenomena.

31.   (New) A computer program product tangibly embodied in an information carrier, the computer program product containing instructions that, when executed, cause a processor to perform operations to estimate a bit error rate for storage media in a data storage device at a future predetermined time, the operations comprising:

write data to the storage media during a predetermined time period;

read the stored data at a plurality of predetermined times during the predetermined time period;

calculate a bit error rate for the storage media at each of the predetermined times during the predetermined time period; and

extrapolate from the calculated bit error rates to estimate what the bit error rate for the media will be at the future predetermined time.

32.   (New) A method for estimating a bit error rate for storage media in a data storage device at a future predetermined time, the method comprising:

writing data to the storage media during a predetermined time period;

reading the stored data at a plurality of predetermined times during the predetermined time period;

calculating a bit error rate for the storage media at each of the predetermined times during the predetermined time period; and

extrapolating from the calculated bit error rates to estimate what the bit error rate for the media will be at the future predetermined time.